

Abstract of the Disclosure

A direct-conversion demodulator having an automatic-gain-control (AGC) function is provided. A down mixer mixes a received RF signal and carrier signals so that a phase difference between the received RF signal and carrier signals may be  $90^\circ$ , and thereby converting the RF signal into baseband signals of channels **I** and **Q** having a phase difference of  $90^\circ$ . A filter filters high-frequency components of the outputs from the down mixer. A detector detects a gain control level corresponding to the difference obtained by comparing the levels of the filter outputs with a predetermined level. An AGC controls the gains of the outputs from the down mixer according to the gain control level detected by the detector. A differentiator differentiates the outputs from the filter. A multiplier cross multiplies the outputs from the differentiator and the outputs from the filter. An adder adds the outputs of the multiplier and thereby detects data.